

Medical Aspects of Violence

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■ *Physicians see violence in beaten wives, battered children, rage reactions, murder, and suicide. They should recognize that it may be a symptom of disease if it is unprovoked or bizarre, or is associated with impaired consciousness, confusion or irrationality. Violence in episodic trance-like states suggests limbic disease (temporal lobe lesions, psychomotor epilepsy, or "dyscontrol syndrome"); in association with personality change, dementia, or psychosis, it indicates cortical disease (structural, toxic, or idiopathic).*

PUBLIC HEALTH WORKERS have good reason to be concerned about violence. Federal Bureau of Investigation statistics for 1968 in the United States¹ show 13,650 murders, 31,060 forcible rapes, 282,400 aggravated assaults, 261,730 robberies, and well over half a million instances of criminal violence in all. On the highways in the United States where a man's power is amplified by 40 to 400 horses, a death occurs every ten minutes (more than 60,000 a year), and an injury every 17 seconds (three million a year). About 40,000 persons commit suicide each year in the United States.²

Physicians see the effect of violence in the care of individual patients—battered children, beaten wives, mayhem done by men to one another. Accident Floor surgeons work day and night with hemostats, needles, and catgut. Family doctors respond to emergency calls for poisonings of many sorts, deliberate, accidental and iatrogenic. Neurologists or psychiatrists may be called in if there are repeated episodes of violence and someone suspects associated organic brain disease or mental illness. Specialists in any field may encounter the results of violence when the organs

of their field are traumatized. All physicians should recognize that violent behavior may be a symptom of disease, like cough or fever, and its cause should be determined if possible.

Maturational Levels

Children are not born with fully developed controls for emotional behavior. They must learn to crawl before they walk and walk before they run. Similarly, they must learn to check their impulses to cry or rage at frustration, postpone gratification, compromise, bargain, accept substitutes, and even surrender once in a while—that is to say, acquire will power. Children often assault one another under conditions of routine play. Rarely do these assaults result in serious injury and then usually by accident. The child who makes deliberate, vicious attacks on other children or animals is probably brain-injured or otherwise abnormal.

At adolescence, with myelinization in the central nervous system (CNS) largely completed (with resultant insulation and specialization of function) most children have acquired enough controls over their instinctual and libidinal impulses to warrant being called civilized. From then on it is civilization that conditions their violence. A few adolescents remain uncommitted and unre-

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constituted and continue to function emotionally as young children.

Normal adult human beings react vigorously when sufficiently provoked. A man attacked by ruffians may have to defend himself and counteract. It is not violence when groups of men on a playing field crash into one another in a struggle over the direction of an elongated leather-covered ball. But repeated destructive impulses improperly controlled constitute a syndrome ("impulsivity," "dyscontrol," "aggressivity") which is of increasing interest to physicians.

Structural Levels

Since the days of Hughlings Jackson, consideration of structural levels in the CNS has thrown light on the nature of normal and abnormal behavior. In understanding clinical violence, the lower levels of the peripheral reflex, spinal cord, and brain stem may be passed over.

Limbic Level. The limbic lobe, limbic brain, and rhinencephalon are interchangeable terms for the "old brain" that phylogenetically preceded the neocortex of homo sapiens. Man could feel before he could think and every infant is good at feeling before he grows up and has a chance to become good at thinking. The feeling limbic area serves as the margin between the brain stem with its automatic mechanisms and the cerebral cortex with its self-conscious, cognitive, and ruminative mechanisms.

Until recently little was known about the limbic structures — the cingulum, amygdala, commissures, fornix, hippocampus, thalamic and hypothalamic nuclei, portions of the temporal lobes, and other adjacent cell masses and interconnecting fibres. These deeply buried portions of the CNS are very sensitive to loss of oxygen at birth, and later to toxins, high fever, and many virus encephalitides, especially rabies. Here the pathologist looks for Negri bodies, and here electrical or chemical stimulation in animals causes "rabid" behavior or rage. This is the "emotional brain," the central area for the instincts. Here reside the raw emotions; only when they can be tempered by cerebral action can they become refined, subjective experiences. Only when constantly and efficiently controlled from above can they be kept consistent with civilized human behavior.

Pathologic change at the limbic level can produce episodic impulsivity and violence.

Reports of Cases

Case 1. A 50-year-old machine-shop foreman entered the hospital following a fracas in which he was knocked unconscious by a younger and much larger man. For several months he had been verbally and physically assaulting the men who worked under him. Formerly a good-natured and friendly man, he had become surly, irascible, and belligerent. Since he was impossible to please and complained of headaches, his wife urged him to see a doctor, but he refused.

When the patient recovered consciousness in the hospital he would not cooperate with the examiner. Eventually he disclosed that his headaches started about a year ago and were increasing in frequency and severity. In recent weeks he had been having strange experiences. For no reason at all he would suddenly smell something foul and have a peculiar metallic taste in his mouth. Sometimes this would be followed by a whistling noise and he would feel himself getting enormously angry. Usually he could find somebody or something to blame. Once he smashed a fine calibrating instrument, several times he beat his children, and often he picked a fight with the men at work.

The neurological examination revealed choked discs, a quadrant defect in the visual fields and other indications of a brain tumor. At operation a large meningioma was removed from the right temporal region and the patient soon recovered his former affable personality.

Comment: It has long been known that tumors of the temporal lobe, particularly on the non-dominant side, may produce personality disorder for years, often with violent behavior. The diagnosis of organic brain pathology would be suspected from the history; the indications of brain tumor are usually found in the neurological examination. Confirmation and localization require specialized techniques.

Case 2. A 17-year-old youth was sent to a mental hospital for examination following an episode of wild rage in which he killed his mother with an ax. He had been known for his violent temper all his life and several times he had been in trouble with the authorities. In minor fights at school he would lose control of himself and would have to be pulled off his antagonist even after the latter had surrendered.

After the fourth school fight in which the victim had to have surgical attention, the patient was sent to a reformatory. There he was beaten up by an older boy and had to have stitches in his own scalp. On parole, he worked as a laborer but was fired from one job after another because of impudence to the foreman.

The father stated that his son had been a problem since birth. His delivery had been long and for a time the doctors could not get him to breathe. In infancy he had convulsions whenever he had a fever, and two or three times had had them without fever. He wet the bed until he was 11. At school he was slow in learning and his teachers said he was the worst-behaved child they had ever had. The father could not understand this, since his other four children had never been a problem at home or anywhere else. This boy was utterly rebellious and no form of discipline, lenient or severe, affected him.

The patient had been out late the night before his mother's death, and she was trying to get him out of bed at noontime. He raged at her, got up and pushed her out of his way. She was a large woman and when she defended herself he brushed against the corner of a bureau and scraped his arm. In a fury at the bit of blood, he picked up his younger brother's Boy Scout ax and hacked at his mother until the results were horrible beyond description. Later he denied any memory of what had happened but when pressed admitted he could dimly remember most of the details up to the time of the actual attack.

Psychiatric observation revealed that the patient had dull normal intelligence, no evidence of psychosis but a clear clinical picture of what was then called "psychopathic personality." The neurological examination, x-rays of the skull, and lumbar puncture were negative. An electroencephalogram, which at the time was a relatively new diagnostic procedure, threw light on the situation by disclosing abnormal brain waves. These occurred in spurts, unlocalized, and there were bursts of spike-and-slow-wave activity indicative of larval petit mal seizures.

Further study verified the diagnosis of psychomotor epilepsy. Diphenyl hydantoin improved the patient's behavior.

Comment: "Psychomotor epilepsy"³ is a clinical term used to indicate episodic behavior disorder, largely involuntary and with impaired consciousness. Some observers use "temporal lobe epi-

lepsy" interchangeably. Usually, there is no indication of the cause, as in most cases of epilepsy, but it is assumed that the lesion is somewhere in the temporal lobe or elsewhere in the limbic area. There are perhaps 750,000 epileptic persons in the United States.⁴ Fifteen percent of them, or more than 100,000, have psychomotor attacks.⁵ Of those who do, perhaps 1 percent, or upward of 1,000, are prone to dangerously violent seizures and most of these epileptics are probably put into institutions.

A third type of episodic violence associated with presumed pathology at the limbic level is only recently becoming recognized. It has been called the "dyscontrol syndrome" by Vernon Mark.⁶

Case 3. A 38-year-old married woman entered the hospital because of repeated attacks of wild, uncontrolled behavior. Without warning she would be assailed by intense feelings of either rage or sexual excitement. In rage she usually attacked her husband. In sexual excitement she sought a partner wherever she could find one. Often she exhausted one man after another with insatiable demands. The smallest amount of alcohol would be enough to inflame her sexual desire or set off a violent display of temper.

Prolonged psychotherapy and tranquilizing medication proved ineffective. An electroencephalogram was grossly abnormal. There were bursts of generalized seizure waves with a variable focus of activity in the fronto-temporal regions. Most of the abnormal activity was clearly subclinical, resulting in inattentiveness and confusion, but the build-up of voltage or more generalized spread of the focal abnormality presumably resulted in episodes of intolerable psychic tension which became channeled into rage or sexual excitement.

Diphenyl hydantoin changed this patient's behavior remarkably. She became quiet and amenable to reason.

Comment: The dyscontrol syndrome is characterized by four clinical features, not all of which appear in every case: (1) unprovoked brutality—beating wives, battering children, or assaulting friends or strangers; (2) pathological reaction to alcohol (dipsomania)—violent aggressiveness and belligerence on minimal amounts of liquor; (3) excessive and ill-controlled sexuality, often involving promiscuity, nymphomania, per-

version, and rape; (4) frequent auto accidents (often precipitated by rage at other drivers).

The syndrome is not a pathological entity, although a lesion or abnormality in the limbic lobe is hypothesized. It apparently overlaps the two entities previously mentioned—temporal lobe pathology and psychomotor epilepsy. All three demonstrate comparable clinical symptoms and signs, show similar EEG dysrhythmias, and respond to the same treatment (anti-convulsive medication and corrective or stereotaxic obliterative neurosurgical procedure).

The violence of limbic disease is characteristically episodic, largely unwilling, and associated with impaired consciousness and inappropriate responsiveness to the environment ("twilight state").

It is at the cortical level that man is uniquely man. The cerebral cortex controls the rational process, perception, evaluation, memory, symbolization, language, judgment, planning and wisdom. The instinctive urges report here and are translated into action and contact with the outside world, preserving unity between past, present and future. The executive functions of the personality reside here and arrange for decisions: acceptance, denial, compromise, postponement. Here sits the will and the source of all voluntary violence.

Violence may also be triggered by two kinds of disease in the cerebral cortex—organic disorder and idiopathic psychosis. The former is most commonly seen in states of intoxication.⁷

A large proportion of violent crimes are committed under the influence of alcohol, a drug notorious for its highly differential effect on individuals. It brings on belligerence, impulsivity, and temporary loss of normal inhibitory controls in perhaps 10 percent of heavy drinkers, and frank clinical violence in less than 1 percent (thus in only 50,000 or so of the eight million alcoholics in the United States).

Case 4. A brilliant nuclear physicist was voted out of his country club because of repeated episodes of grossly disorderly conduct. Normally a quiet and retiring man, he changed strikingly when he drank too much. He began by being playful and teasing with his wife, then became irritable and found a pretext for getting angry. If his wife and close friends did not succeed in

taking him home quickly he usually became combative. Just before he was referred to a psychiatrist he pushed an acquaintance at the club through a glass door and the man's face was badly cut.

Other toxic conditions of the cerebral cortex may produce violence in some individuals. Drugs such as barbiturates, marijuana, and narcotics of the morphine type that are widely abused are sedative and depressing in their reaction, but occasionally, like alcohol, produce a dangerous releasing reaction, with impairment of perception and judgment. The hallucinogens (LSD, psilocybin, glue vapor and others) are notorious for "bad trips" and associated bizarre and damaging consequences.

Case 5. A 20-year-old college girl went to a fraternity party where everyone smoked marijuana, took LSD, and sampled other undetermined drugs. Early the next morning she returned to her apartment on the third floor of a dormitory. Her roommate, noting her strange speech and behavior, tried to persuade her to go to the infirmary. Instead she suddenly went to a window and dived out to her death.

Cortical impairment can result from a wide variety of other pathological physicochemical conditions. Many of these produce so much physical incapacity that violence cannot be a problem except in the very early stages—for example, high fever, uremia, hepatic coma, hypoglycemia, diabetic acidosis, porphyria, hypoxia, and poisoning (heavy metals, venoms).

Structural cortical pathologic change—as, for example, in head injury—may produce abnormal behavior and violence in which transient mental confusion and strange antics sometimes dominate the clinical manifestations. Another example is senile dementia in which the cantankerous and sometimes extremely assaultive temperament is well recognized. Unexplained character change with violence may indicate brain tumor or cerebrovascular disease.

Case 6. A 49-year-old carpenter began to be extremely religious. He had never been a churchgoer but now he gave sermons to his wife, children, grandchildren—anyone who would listen. He felt that being a carpenter gave him Christ-like stature and that he had an important predes-

tined role to play in the world. Were it not for his headaches and sudden impulsive rages, he would enter the clergy. In the last rage he broke all the windows in his house because he thought the air of Nature should circulate more freely.

The physical and neurological examinations were negative but x-ray films of the skull revealed suspicious areas of calcification in both frontal regions. Subsequent study and operation verified widespread glioma of the frontal lobes.

In idiopathic psychotic entities that have no accepted organic cause (largely schizophrenias and manic-depressive psychoses), violence sometimes occurs, although not with the frequency that is supposed. Probably less than 50 percent of all psychotic persons are ever recognized as such, and of these less than 10 percent become violent. That still accounts for many thousands of violent episodes every year.

Case 7. A 32-year-old single woman was arrested for killing her newborn child. She was a very obese domestic, and no one ever knew she was pregnant. She had had two babies before, delivered them herself, suffocated them, and disposed of the bodies. This time she had been careless and her employer called the police. Psychiatric study revealed that the patient believed the babies were sent to test her courage. Destroying them proved she was fit to continue seeking the "servant of God" who would lead her to "salvation."

Where does illness leave off and badness begin? Some believe that every criminal should be considered mentally sick. These are no doubt the "tender minded" that William James spoke of—but tender to the point of being softheaded. What is criminal here and today may be heroic somewhere else and tomorrow. Psychiatry as the medical specialty for mental illness and mental health is not now, has never been, and scarcely ever could become the grand arbiter of all human behavior. Deliberate violence belongs in the realm of criminology, sociology, ethics, religion, diplomacy, and international relations.

Yet now and again one must seriously question whether an individual is insane or depraved. If the individual controls great power the results may devastate and shake the earth.

Case 8. A middle-aged housepainter became active in politics and by advocating a bold, revolutionary program at a propitious time and place he gathered millions of fanatic followers. Much of his success derived from ruthless and unscrupulous scapegoating of a specific minority group. He put to death six million men, women, and children of the minority group and nearly conquered the civilized world in warfare.

Comment: Violence caused by disease of the cerebral cortex is characterized either by confusion (in organic disorders) or irrationality (in idiopathic psychosis). In the former, volition is partial or absent, in the latter it is present but sick.

The Differential Diagnosis

In evaluating the possible medical significance of a violent act, consider (1) its provocation, (2) appropriateness, (3) deliberateness, and (4) the characteristics of the attendant behavior.

1. Violent acts brought about by disease⁸ are usually unprovoked or are precipitated by a stimulus that would be insufficient in a healthy person—for example, a student who sits in a campus tower and shoots at anyone in sight, a father who fractures the skull of his baby son because he will not stop crying, or a man who smashes furniture because the bartender will not serve him more liquor. Sometimes, however, a seemingly trivial provocation may actually be quite adequate in a normal person for a violent act. A man who has been harrassed by his boss all day comes home and finds his house door will not close properly. He finally slams it so hard he breaks a pane of glass. At the end of a hard day a wife flings a plate at a taunting, tipsy husband. Allowances must be made for exasperation, pique, and human frailty.

2. Bizarre acts label themselves as sick. A young man stabs a babysitter and her child 40 times. A vagrant strangles several women in their apartments, attacking their dead bodies sexually. The well-bred daughter of a professional man stabs a stranger with scissors in the ladies room of a theater. A young girl beats her friend into unconsciousness, pulls out her hair and stuffs it into her mouth. What is bizarre and inappropriate in one context, however, may be quite usual in another, as, for example, the maiming and grotesque disfiguring of enemy bodies in certain primitive tribal feuds.

3. In the common law, acts committed without conscious volition belong in the domain of the physician rather than the jurist. Violent acts that are committed in trance or twilight states, with complete absence of premeditation, conscious awareness, or later recall are suggestive of limbic disease and are clearly medical. Evidence of abnormal behavior or abnormal electroencephalogram are helpful in the diagnosis. Other violent acts occur in impassioned impulsiveness ("irresistible impulse"), with complete conscious awareness but with loss of control ("temporary insanity"). A wife surprises her husband in bed with her best friend and shoots. A young man catches his fiancée making love with someone else and goes berserk. In certain areas of the United States the wife would probably go free, but the young man would not. The physician rarely can contribute in cases of this kind. Acts committed while intoxicated, such as causing a fatal auto accident, are also legal problems and not medical.

4. The description of the attendant behavior in a violent act carries weight because it can be impartial, objective and diagnostically significant. Chronic dementia (loss of intellectual functions—memory, speech, reasoning, judgment) or pronounced personality deterioration indicate or-

ganic brain disease. Amnesia for the episode alone must be looked at askance, since it can easily be shammed. A dazed, befuddled, drunken or confused demeanor characterize cortical disease, often alcoholic or toxic. Irrationality, delusions, hallucinations or severe mood abnormalities (suicidal depression, maniacal elation, wild rage) mark violence as psychotic. Automatism or robot-like behavior with inappropriate responsiveness to the surrounding environment suggest limbic disease.

Most human violence is perpetrated by medically normal persons who show few or none of the above phenomena. They act impulsively emotional or deliberately malevolent.

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MISDIAGNOSIS IN CASES OF DEAFNESS

"While a failure to detect deafness is bad enough, far worse are the misdiagnoses that occur. In our experience at Michael Reese Hospital and Medical Center in Chicago, at least one-third of the parents of deaf children report early erroneous diagnoses. Some of these grow out of the very complex problem of differential diagnosis between mental retardation, brain damage, auditory agnosia, delayed speech, autism, childhood schizophrenia, and deafness. Often it's not a differential diagnosis of either/or, but it's a diagnosis of how much of each. Most hospitals for the retarded have entire units of patients for whom they are unable to make a diagnostic decision with regard to these confusing areas. I have personally found 15 deaf persons in institutions for the mentally retarded who were not retarded."

—McCAY VERNON, PH.D., Chicago

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